



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/574,998

04/07/2006

Russell Vaughan Meddes

06-241

3518

20306

7590

08/05/2008

MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP
300 S. WACKER DRIVE
32ND FLOOR
CHICAGO, IL 60606

EXAMINER

RO, YONG-SUK

ART UNIT

PAPER NUMBER

4171

MAIL DATE

DELIVERY MODE

08/05/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/574,998	Applicant(s) MEDDES ET AL.	
	Examiner Yong-Suk Ro	Art Unit 4171	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/22/2006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 12 is not clear because of its dependency on the term "circumferentially". Is this claim supposed to depend on claim 11 or is the term "circumferentially" supposed to be "longitudinally"?

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Xu et al. (6422148) in view of Yang et al. (6520258).**

Regarding claim 1;

Applicant claims a carrier and a method of improving fluid outflow from a well bore, comprising:

- A carrier for at least one shaped charge.
- The carrier being disposable in use within a well bore.
- The carrier comprising at least partially formed from a composite material.
- The composite material being non-frangible.
- The composite material being arranged to contain debris created within the carrier as a result of firing of the at least one shaped charge.

Xu et al. discloses a similar carrier **20** in Fig. 1, comprising;

Regarding claim 1;

- A carrier for at least one shaped charge is cited in Col 1, line 36.
- The carrier being disposable in use within a well bore corresponds to **20** in Fig. 1.
- The carrier comprising at least partially formed from a composite material is cited in Col. 3, line 43-44 and Col. 3, line 28-34. The “a perforating gun assembly” reads on “carrier”.
- The composite material being non-frangible. It is noted that the composite material can be either frangible or non-frangible based on material choice.

Regarding claim 2;

- Housing (**20**; Fig. 1 and 2) comprising an inner housing (**23**; Fig. 2) that is at least partially encompassed by an outer composite material overwrap (**24**; Fig. 2).

Regarding claim 3;

- The metal inner housing is cited in Col. 4, line 62.

Regarding claim 4;

- The composite material housing is cited in Col. 3, line 28-34.

Regarding claim 5;

- The thin walled cylinder housing corresponds to **23** in Fig. 2 (Col. 1, line 33-34).

Regarding claim 6;

- The thin walled metal cylinder housing is cited on Col. 4, line 62.

Regarding claim 7;

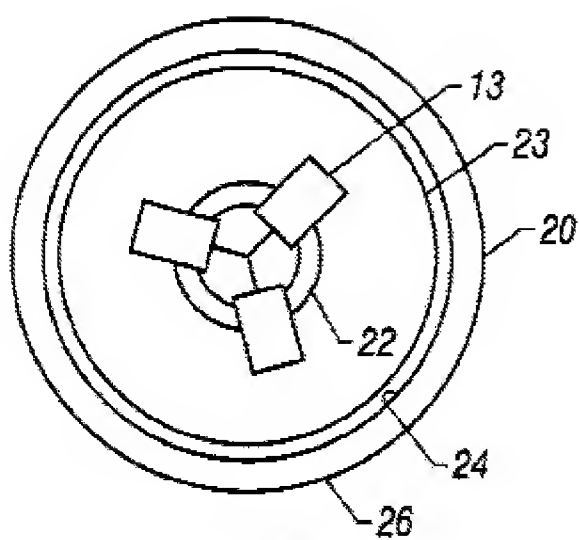
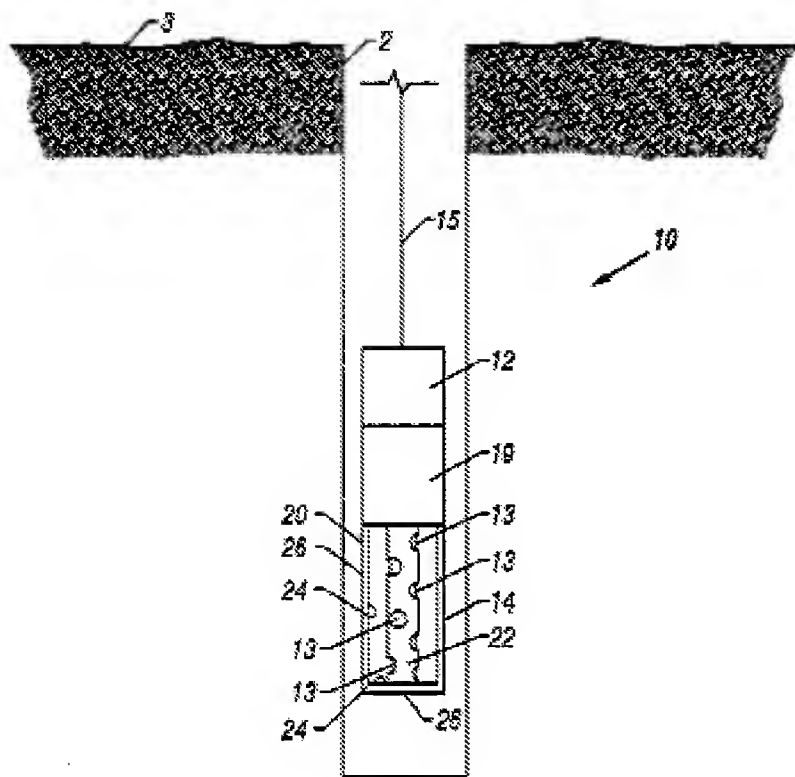
- The carrier with at least one port corresponds to **13** in Fig. 1.

Regarding claim 8;

- A plurality of ports distributed along the longitudinal extent of carrier responds to **13** in Fig. 1.

Regarding claim 9;

- The composite material loaded polymer matrix is cited on Col. 2, line 57-58



Regarding claim 10, 11, 12;

- Composite material including longitudinally arranged fibers in claim 10, and composite material including circumferentially arranged fibers in claim 11, are cited in Col. 4, line 64-67, Col. 5, line 1, and the circumferentially arranged fibers having predetermined tensions in claim 12. It is noted that the mechanical property, such as tension, of composite material depends on the arrangement of fiber. The case law has held that “a particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation”. In *re Antonie*, 559 F2d, 618, 195USPQ 6 (CCPA 1977). Thus, it is obvious to optimize the fiber arrangement by routine optimization of fiber.

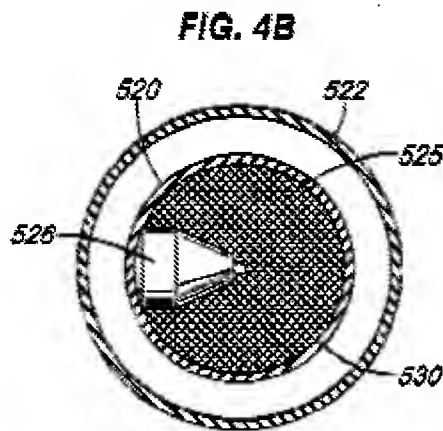
Regarding claim 13;

- A perforating gun comprising carrier is cited in Col. 1, line 33-35.

However, Xu et al. fails to disclose the composite material being arranged to contain debris created within the carrier as a result of firing of the at least one shaped charge in claim 1 above.

The difference between the present invention and the device of Xu et al. is the composite material being arranged to contain debris created within the carrier as a result of firing of the at least one shaped charge.

Yang et al. disclose the retrievable gun system employing carrier strips which is designated to stay intact after firing of shaped charge (Col. 6, line 65 and Col. 9, line 6-9). Yang et al. teach the carrier strips (**520**; Fig. 4B) which remains intact after firing of shaped charge (**526**; Fig. 4B) reduced the debris in the well bore after perforating has been performed (Col. 9, line 4-10). It is noted that gun system with carrier that remains intact after firing can contain the debris.



Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the carrier of Yang et al., which remains intact after firing, in the gun assembly of Xu et al., that is constructed from composite material in order to reduce debris in the well bore which results in better fluid flow.

Regarding claim 14 and 15; Xu et al. disclose the method for improving fluid outflow from a well borehole where the method involves the following steps:

- Providing a perforating gun.
- Positioning the perforating gun in the well borehole.
- Perforating the borehole by firing the perforating gun.

Xu et al. further disclose the fluid is one or more of hydrocarbons, water, and steam (Col. 1, line 16) in claim 16. It is noted that the “well fluids” can be either water or oil.

However, Xu et al. fail to disclose the step of retrieving debris resulting from the step of perforating by recovering the carrier of the perforating gun, the carrier containing debris resulting from the firing in claim 14.

Yang et al. disclose the step of retrieving debris resulting from the step of perforating by recovering the carrier of the perforating gun, the carrier containing debris resulting from the firing (Col. 6, line 65 and Col. 9, line 6-9) in claim 14. It is noted that the retrievable gun system implies recovering carrier of the perforating gun.

Yang et al. teach the carrier strips (**520**; Fig. 4B) which remains intact after firing of shaped charge (**526**; Fig. 4B) reduced the debris in the well bore after perforating has been performed (Col. 9, line 4-10). It is noted that gun system with carrier that remains intact after firing can contain the debris.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the carrier of Yang et al., which remains intact after firing, in the gun assembly of Xu et al., that is constructed from composite material in order to reduce debris in the well bore which results in better fluid flow.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yong-Suk Ro whose telephone number is (571)270-5466. The examiner can normally be reached on M-F, 9hrs.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Larry Tarazano can be reached on 571-272-1515. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ling-Siu Choi/
Primary Examiner, Art Unit 1796

Yong-Suk Ro
Examiner
Art Unit 4171

Application/Control Number: 10/574,998
Art Unit: 1796

Page 10